

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE AS FOLLOWS:

1. A combination lock/latch for a window assembly for installation on a moveable sash adjacent a track jamb of the window assembly , and preferably a double hung or tilt and slide window assembly, said combination lock/latch comprising:

- 1) a housing for said lock/latch having an opening extending therefrom and preferably from the top thereof;
- 2) a rotatable camlock disposed in the housing, a spindle or alternatively a tab connected to said camlock and extending therefrom through the opening of said housing and having a user accessible part or handle; said camlock having an engaging portion for rotatable engagement/disengagement with a keeper or slot affixed to or disposed with a framing part or an outside sash of said window assembly , said camlock having a detent provided therewith for rotatable engagement with a tilt latch, preferably only after the engaging portion has disengaged the slot or keeper;
- 3) a preferably one piece biased tilt latch portion having two ends also disposed within said housing and biased to the latched position and having a nose portion proximate one end thereof and a detent portion

proximate the other end thereof, said biased latch for engaging a track proximate the nose portion thereof, (and preferably in one embodiment in a latch block proximate said track, said block having at least one pocket for receiving said nose portion of the latch, and in another embodiment said nose extending further into said track or preferred block so as to provide the sash with a higher wind pressure loading capability), and for engagement with the detent of the camlock proximate the detent of said tilt latch proximate the other end thereof, said latch being biased to the track, (or preferred block), engaging position subsequent to being released by rotation of the camlock subsequent to when the engaging portion has disengaged the keeper,

wherein said lock/latch combination obviates the need for a separate cam-lock and a separate tilt latch.

2. The cam-lock of claim 1 further comprising a shoulder and the detent of said tilt latch is a tab disposed at the end of a flexible finger, these parts engaging to convert the rotary motion of said cam to linear motion of said tilt latch.

3. The cam-lock of claim 1 or 2 wherein a return spring is disposed within said housing to engage the tilt latch intermediate said nose and said tab to bias the sliding linear motion of said latch to the track engaging position.

4. The cam-lock of claim 1 or 2 wherein the keeper or slot may further comprise a receiver/transmitter for an alarm system while the camlock includes the corresponding transmitter/receiver.
5. The cam-lock of claim 3 wherein the keeper or slot may further comprise a receiver/transmitter for an alarm system while the camlock includes the corresponding transmitter/receiver.
6. A latch reinforcing block for engagement with the nose portion of any tilt latch assembly and preferably with the above-mentioned camlock/tilt latch combination, said block comprising a top and bottom and having extending from proximate the top to proximate the bottom there-through fastening portions to fasten said reinforcing block within the track of a preferred window assembly, said reinforcing block having disposed proximate the top thereof at least one cutout, notch or pocket extending towards the bottom and for receipt of a corresponding nose portion of the latch assembly in order to pass loads such as wind loads or the like to the frame section to which the reinforcing block is attached.
7. A latch reinforcing block of claim 6 wherein the reinforcing block includes an extra large notch, pocket, cutout or the like in order to engage with the corresponding nose portion of the tilt latch which is able to hyperextend much past the normal extension of such a nose portion into the block to further enhance the reinforcing and load carrying capability of the window assembly.

8. A latch reinforcing block of claim 6 or 7 wherein when the window assembly is a single hung or a double hung window, the reinforcing block further comprises a counter balance spring mounting block for engagement with the counter balance spring of the single or double hung window assembly, said reinforcing block further comprising a means for engaging the counter balance spring when present and fastening thereto wherein said housing for the counter balance spring and/or said spring is mounted on or fastened to the reinforcing block fastened to sash track allowing motion of the spring while the block is fixed into position relative to said track.

9. A latch reinforcing block of claim 8 wherein said reinforcing block for the counter balance spring is adapted to include at least one reed switch element for a security system, pre-wired thereto and within the sash, so as to enable the security system to be installed in the window assembly as it is manufactured and the corresponding magnet is installed with the nose portion of a tilt latch.

10. A latch reinforcing block of claim 8 wherein the reinforcing block is installed within a tilt and slide window assembly and further comprises a body mounted within said track having at least one cut-out, notch, or pocket for receipt of the nose portion of a tilt latch, said body having disposed therein means to enable a security system to be armed, (for example a reed switch or magnet) whether the latch nose is in the locked or in the latched position.

11. A simple tilt latch for an outside sash comprising a one piece member which includes a flexible finger which flexes when the latch is released from a track, or a preferred block disposed in a track, by pulling the sash inwardly away from the frame, a flexible zone disposed with said finger providing the flexing function of the finger in order to release said latch from the track or preferred block.

12. The tilt latch of claim 11 wherein said finger is a narrow extension extending from the body of the simple tilt latch which flexes away from and toward the track or preferred block as provided by the flexible zone when the latch is released or engaged and which returns by memory to its track engaging position.

13. A substantially zero clearance clamping pivot shoe, said pivot shoe comprising a top and a bottom and having disposed proximate the top and bottom thereof, camming members having camming elements or surfaces having leading edges and said members preferably being formed from metal, said camming members having disposed there-between a first and a second track clamping element preferably having braking means provided therewith and preferably at least one supplementary preferably pebbled preferably metal braking part engageable with a clamping element and a track portion for a window assembly disposed and riding between said clamping elements in use, said clamping members each having compatible camming elements or surfaces engagable with respect to the top and bottom camming member elements or surfaces, said top and bottom clamping

elements including track engaging parts and track supporting glide posts respectively integrally formed therewith to enable the track to glide unclamped yet supported between the clamping elements when the window is not pivoted, the top of the posts extending above the top of said braking means until the window is pivoted, wherein when the window is pivoted the leading edge of the camming elements/surfaces of the top and bottom members override the camming elements/surfaces of the clamping elements to cause the clamping portions and preferred braking means to move towards one another preferably a distance substantially equal to the sum of the dimensions of the top and bottom camming elements thereby causing the clamping elements to immediately move toward one another and to clamp down on the laterally extending track portion of the window assembly and prevent movement of the sash within the track prior to the window being pivoted more than substantially 1 degree or substantially beyond the angle whereat the free end of the window would no longer be disposed in the track.

14. The pivot shoe of claim 13 wherein the top and bottom camming members and clamping portions include camming elements that are substantially triangular shaped land and groove portions.

15. The pivot shoe of claim 13 or 14 wherein the upper clamping member includes a substantially v-shaped camming surface which normally engages a substantially v-shaped camming pocket within the upper clamping member, and preferably the lower camming member includes smaller trapezoidal -shaped

camming surfaces which engage with compatibly shaped camming recesses in the lower clamping member to provide the clamping action.

16. The pivot shoe of claim 13 or 14 wherein the upper camming member engages with a metal bracket proximate the top thereof and includes a pivot extension portion which extends through the upper and lower clamping member, the lower camming member being secured proximate the bottom thereof preferably via a substantially c-shaped clip engaging a groove provided with said pivot extension portion, preferably, the metal bracket engaging the upper camming member includes a slot and an outwardly extending leg for engaging with the sash and a corresponding bracket having a generally hat shaped profile fastened to the side of a window sash adjacent the pivoting ends thereof, wherein the hat profile may be slid into the substantially c-shaped profile of the first bracket to fasten the window sash to the pivot shoe assembly and the outwardly extending leg.

17. The pivot shoe of claim 15 wherein the upper camming member engages with a metal bracket proximate the top thereof and includes a pivot extension portion which extends through the upper and lower clamping member, the lower camming member being secured proximate the bottom thereof preferably via a substantially c-shaped clip engaging a groove provided with said pivot extension portion, preferably, the metal bracket engaging the upper camming member includes a slot and an outwardly extending leg for engaging with the sash and a corresponding bracket having a generally hat shaped profile fastened to the side of a

window sash adjacent the pivoting ends thereof , wherein the hat profile may be slid into the substantially c-shaped profile of the first bracket to fasten the window sash to the pivot shoe assembly and the outwardly extending leg.